

# JOINT INDUSTRY GUIDE (JIG)

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## Material Composition Declaration for Electronic Products

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**JIG-101**

APRIL 2005

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PRODUCTS**Contents

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## **MATERIAL COMPOSITION DECLARATION GUIDE FOR ELECTRONIC PRODUCTS**

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### **Foreword**

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This document has been worked on for more than three years by member companies of EICTA (Europe), JGPSSI (Japan), EIA (USA) and JEDEC (USA).

The document represents an alternative to an existing automotive specific document on the subject, which is not well aligned with the practices of non automotive market segments.

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### **Introduction**

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The Electrical and Electronic Equipment (EEE) industry tracks and discloses specific information about the material composition of its products due to legal and market requirements. The industry needs to gather information about the composition of products and subparts that are purchased from suppliers for incorporation into final products. This affects the entire supply chain worldwide.

Material composition information can help manufacturers:

- satisfy legal and regulatory requirements;
- drive improvements in product design; and
- respond to inquiries from customers, product recyclers and other stakeholders.

To obtain material composition data, many manufacturers have developed material declaration questionnaires (also known as green procurement surveys or supply chain questionnaires) that require suppliers to disclose certain information about the products and subparts they sell. These questionnaires usually take the form of a list of banned or restricted materials and substances that the supplier must certify are not present in the product or subpart. In addition, they often include a separate list of materials and substances that need to be identified when present. Due to the diversity of information requests and formats, it is difficult for suppliers to manage material declaration requests.

Recognizing the challenges that the entire global EEE industry faces from diverse material composition requests, a workgroup composed of representatives from EICTA, EIA and JGPSSI developed this material composition declaration guide.

## MATERIAL COMPOSITION DECLARATION GUIDE FOR ELECTRONIC PRODUCTS

(Formulated under the cognizance of the Joint Industry Materials Declaration Guide Committee)

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### 1 Scope

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This guide applies to products and subparts that are supplied to EEE manufacturers for incorporation into their products. It does not apply to packaging materials (e.g. cardboard, plastic tray). It covers materials and substances that may be present in the supplied product or subpart. It does not apply to process chemicals, unless those process chemicals constitute part of the finished product or subpart.

It applies to business-to-business transactions. It is not intended to be used by the general public when making purchasing decisions.

The purpose of this guide establishes the materials and substances to be disclosed by suppliers when those materials and substances are present in products and subparts that are incorporated into EEE. It benefits suppliers and their commercial customers by providing consistency and efficiency to the material declaration process. It promotes the development of consistent data exchange formats and tools that will facilitate and improve data transfer along the entire global supply chain.

#### **This guide contains:**

- the lists of materials and substances for disclosure;
- the composition amount that requires disclosure (i.e., Threshold Level);
- the regulatory requirements that establish threshold levels, where appropriate;
- a set of data fields for information exchange.

This guide does not preclude companies from inquiring about the presence of additional materials and substances when necessary for their business needs. However, such requests are outside the scope of this guide.

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### 2 Use of Guide

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The purpose of this section is to provide reporting guidance to suppliers. By following this guide, suppliers will be prepared to meet the majority of their customers' material composition reporting requirements.

Suppliers should be prepared to report materials and substances to their customers based on Annexes A and B. Customers have the flexibility to use these lists in their entirety or as a subset depending upon their business needs (e.g., use Annex A, or Annex A and Annex B, or a subset of both lists). If suppliers lack material or substance information that is needed to respond to customer inquiries that are based on this guide, suppliers are expected to use this guide with their own suppliers to obtain the necessary information. The recommended set of data fields for reporting purposes is found in Annex C.

## **2 Use of Guide (cont'd)**

Annexes A and B identify categories of materials and substances for reporting. Each category represents groups of materials and substances for which expanded listings are available in Annex F. For categories that represent inorganic substances in Annexes A and B, quantitation and reporting in those categories should be based on the total mass of the inorganic element for the category that is present whether in the form of the pure element or as a compound or alloy of that element in the declared part. For categories that represent organic substances, quantitation and reporting should be based on the total mass of all relevant compounds in the category that are present in the part being declared.

When determining whether it is necessary to report a material or substance, the following should be considered:

- When a law exists that sets a threshold for a material or substance, the units of concentration set forth in the law will be the basis for quantification and reporting of that substance.
- Where a law does not exist, concentration levels (ppm) should be determined based on the total weight of the inorganic element as explained above or the organic substances in a category which are contained in the product or subpart divided by the total weight of the product or subpart for which the declaration is being developed.
- If a material or substance is not present or is present below its applicable reporting threshold, it does not need to be reported. A supplier may voluntarily report this information.

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## **3 Materials and Substances**

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This guide establishes two categories of materials and substances to be declared. These lists are based on criteria that the industry has determined justify disclosure when these material/substances are present in products or subparts.

### **Criteria for Level A Disclosure:**

The Level A List is composed of materials and substances when used in products and subparts that are subject to currently enacted legislation that:

- a) Prohibits their use;
- b) Restricts their use; or
- c) Requires reporting or results in other regulatory effects.

Based upon these criteria, Level A materials and substances are listed in Annex A.

### **Criteria for Level B Disclosure:**

The Level B List is composed of materials and substances that the industry has determined relevant for disclosure because they meet one or more of the following criteria:

- a) Materials/substances that are of significant environmental, health, or safety interest
- b) Materials/substances that would trigger hazardous waste management requirements
- c) Materials/substances that could have a negative impact on end-of-life management.

Based upon these criteria, Level B materials and substances are listed in Annex B.

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#### 4 Data Format

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This guide establishes the data disclosure framework. The framework contains required data fields as well as optional data fields. Optional fields, which may be needed for business-to-business purposes, may be added at the discretion of the customer. Annex C contains the required and optional data fields. As the guide is updated and changed, the data format will be modified to reflect these changes.

There are a variety of data format tools that companies can use to implement this guide. These tools could range from a paper form, a computerized spreadsheet, to an xml based e-business solution. This guide does not dictate the use of specific tools. Rather, it establishes the minimum as well as possible optional fields that can be used and allows companies the flexibility to select the tool that best meet their business needs. As a result, companies that choose to use data format tools that contain the required fields but also additional fields not covered by this guide are consistent with the guide.

Annex D contains two examples of a simple material declaration request. The first contains only the required fields. The second example contains the required fields and the optional "negative declaration" field. Annex D also references additional material declaration tools.

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#### 5 Terms and Definitions

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For the purposes of this guide the following definitions apply:

**product:** The item that the respondent is supplying (e.g., assembly, subassembly, component, raw material). A product may include product families if the products within those families perform the same function and have consistent material declarations.

**subpart:** A sub-unit of a product.

**material:** A material is made up of one or more substances (e.g., an alloy is a material, which in turn is made up of a number of substances).

**substances:** Substances are chemical elements and their compounds (e.g., lead (chemical element), lead oxide (compound), polyvinyl chloride (compound)). Registry numbers (RN) of the Chemical Abstracts System of the American Chemical Society ("CAS" numbers) are attributed to all chemical elements and most of their compounds and should be used for their identification. CAS numbers are provided (in Annex F) for these substances where known.

**intentionally added:** Deliberate use in the formulation of a product or subpart where its continued presence is desired to provide a specific characteristic, appearance or quality. If listed materials or substances are contained in products or subparts purchased by supplier and are incorporated, such materials/substances must be disclosed if the supplier has knowledge (or with reasonable inquiry should have knowledge) of the presence of such materials or substances.

**threshold level:** Concentration level which defines the limit (equal to or) above which the presence of a substance or material in a product or subpart must be declared based on the requirements of this guide.

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**6 Disclaimer**

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Although this guide and its annexes contain references to legal citations and regulatory limits for certain listed materials, these citations and regulatory limits should not be relied upon for compliance purposes. The annexes also provide examples of expected use and regulatory restrictions and prohibitions relating to the materials and substances. The examples are for reference only and do not constitute a comprehensive reference to all uses, regulations and prohibitions and should not be used for compliance purposes. Please contact legal counsel for specific compliance requirements. Any use of this guide, other than uses that are consistent with its stated purpose, are neither sanctioned nor endorsed by EIA, EICTA or JGPSSI. Furthermore, where materials and substances are listed in this guide, their listing does not infer or constitute an industry judgment as to their environmental or health impacts.

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## Annex A (Normative) Level A Materials and Substances

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For Level A materials and substances, the threshold levels are set by the law that bans or restricts their use. Therefore, assessment as to whether the threshold level has been met must be based on the relevant legal requirements. If a law establishes a new threshold for ban or restriction purposes, this threshold will be revised accordingly (e.g., the thresholds for lead, mercury, cadmium, hexavalent chromium, and the PBBs and PBDEs will be revised once the legal determinations for the European Community Restriction on certain Hazardous Substances in Electrical and Electronic Equipment Directive are established). For laws that allow the presence of certain materials or substances in amount lower than a certain part per million (ppm) threshold, companies should use the ppm methodology that is established by that law in order to determine whether disclosure is necessary. Reporting below the threshold is allowed, but not required.

**Intentionally Added** means the deliberate use in the formulation of a product or subpart where its continued presence is desired in the final product or subpart to provide a specific characteristic, appearance, or quality. Metal plating is an example of intentional addition.

**Certain Azocolourants and Azodyes** is applicable to leather and textile products and subparts that may come into direct and prolonged contact with human skin. Please note that the European Community's ban only applies to certain Azocolourants and Azodyes that by reductive cleavage of azo groups may release one of 22 aromatic amines. Please see Appendix F for more information.

**If a material/substance is intentionally added, then it needs to be reported regardless of its content level. If a material/substance is otherwise present, then its threshold level applies.**

NOTE In some cases only a subset of the materials/substances are regulated, please refer to Annexes E and F for details.

Material/Substance Category	Threshold level
Asbestos	Intentionally added
Certain Azocolourants and Azodyes	Intentionally added (see Directive 76/769/EEC for applicability)
Cadmium /Cadmium Compounds	75 ppm or Intentionally added
Hexavalent Chromium/Hexavalent Chromium Compounds	1000 ppm or Intentionally added
Lead/Lead Compounds	1000 ppm or Intentionally added 300 ppm (PVC cables only)
Mercury/Mercury Compounds	1000 ppm or Intentionally added
Ozone Depleting Substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc.)	Class I: Intentionally added Class II . HCFCs: 1000 ppm
Polybrominated Biphenyls (PBBs)	1000 ppm or Intentionally added
Polybrominated Diphenylethers (PBDEs)	1000 ppm or Intentionally added
Polychlorinated Biphenyls (PCBs)	Intentionally added
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	Intentionally added
Radioactive Substances	Intentionally added
Certain Shortchain Chlorinated Paraffins (See Annex F)	Intentionally added
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	Intentionally added
Tributyl Tin Oxide (TBTO)	Intentionally added

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**Annex B (Normative) Level B Materials and Substances**

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For Level B materials and substances, the default threshold concentration level is 1000 ppm based upon the weight of the inorganic element (totaled from all forms present) or the organic substances in a category contained in the product or subpart divided by the total weight of the product or subpart for which the declaration is being developed.

Note: Nickel must be reported when used in applications where nickel compounds are likely to result in prolonged skin exposure (e.g., an outer enclosure for a portable electronic product designed to be carried). Use of nickel or nickel compounds in components and parts designed to be located inside the outer enclosure of a product need not be reported.

NOTE Materials/substances are listed by group. Please refer to Annexes E and F for details.

<b>Material/Substance Category</b>	<b>Threshold level</b>
Antimony/Antimony Compounds	1000 ppm
Arsenic/Arsenic Compounds	1000 ppm
Beryllium/Beryllium Compounds	1000 ppm
Bismuth/ Bismuth Compounds	1000 ppm
Brominated Flame Retardants (other than PBBs or PBDEs)	1000 ppm
Nickel (external applications only)	1000 ppm
Certain Phthalates (see Annex F)	1000 ppm
Selenium/Selenium Compounds	1000 ppm
Polyvinyl Chloride (PVC) (Disclosure is limited to "is present"/"is not present" in amounts that exceed threshold)	1000 ppm

**Annex C (Normative) Set of Data Fields**

#	Category	Data field	Status	Description
1	DECLARATION	Date (timestamp date e.g., DD-MON-YYYY)	Required	The declaration contains a date and time identifier.
		Declaration note	Optional	Additional information about the declaration may be added
2	INFORMATION SENDER	Company Name	Required	The company name.
		DUNS	Optional	Dun &Bradstreet's Data Universal Numbering System. <a href="http://www.dnb.com">http://www.dnb.com</a> . The D&B D-U-N-S Number is the standard for keeping track of the world's businesses. Its unique nine-digit code helps identify and link more than 60 million companies worldwide.
		Address	Optional	The address of company.
		Contact person	Optional	The contact person at the company.
		Email-address	Optional	Email-address for the contact person
3	PRODUCT/ SUBPART	Product/Subpart Name	Required	The item that the respondent is supplying (e.g., assembly, subassembly, component, raw material). A sub-part refers to a sub-unit of a product.
		Product /Subpart Number	Required	The supplier product number
		Information Receiver Product /Subpart Number	Optional	The customer product number
		Product /Subpart Total Mass (g)	Required (Optional for PVC)	Grams of the Product/Subpart Total mass. Disclosure must be in SI units as defined in ISO 31.
		Product /Subpart Information	Optional	Additional information about the product/subpart. This object is needed for ensuring e.g., RoHS-compliance by identifying sub-part or location Material/Substance.
4	MATERIAL/ SUBSTANCE	Material/Substance Category Name	Required	From Annex A or B
		Material/Substance Category present or not (Y/N) above threshold limit	Optional	Provides declaration that material/substance category is not present above threshold level in product or subproduct which is declared. Allows for negative declaration, if desired.
		Material/Substance Name	Optional	A material is made up of one or more substances (e.g., copper alloy is a material, which in turn is made up of a number of defined substances, copper, nickel, silver, etc.). Substances are chemical elements and their compounds. See Annex F for Examples
		Material/Substance CAS-number or ISO Number	Optional	Chemicals Abstract Service Numbering System. ISO International Standards number for identifying material/substance e.g. as in the case of brominated flame retardants.
		Material/Substance Mass (g)	Required (Optional for PVC)	Grams of Material/Substance mass if present above threshold levels. Disclosure must be in SI units as defined in ISO 31.
		Material/Substance (ppm or %)	Optional	Parts per million, ppm, or weight percentage of Material/Substance mass if present above threshold levels
		Detailed Material/Substance Information	Required*/ Optional	Location/application information. This object may be needed for ensuring e.g., RoHS-compliance. * Mandatory when declaring Level A materials/substances
		Detailed Material/Substance Note	Optional	Additional information about the material/substance. If applicable, additional information about radioactivity, e.g. radioactivity isotope name and code, max activity Level (MBq), typical activity level (MBq)

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**Annex D (Normative) Examples of Material Declaration Forms**

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Below you will find two examples of a material declaration that is based on this guide. This represents the most basic form containing only mandatory data fields. The second example contains the mandatory fields plus the optional “negative declaration” field.

**EXAMPLE 1 — SAMPLE MATERIAL DECLARATION DATA SHEET WITH REQUIRED DATA FIELDS**

Date: \_\_\_\_\_  
 Company Name: Any Company  
 Product Name: Integrated Circuit  
 Product Number: 001  
 Product Total Mass (g): 1.0 g

Material/Substance Category Name	Material/Substance Mass (g)	Detailed Material/Substance Information
Bismuth	0.2	Solder

**EXAMPLE 2 — SAMPLE MATERIAL DECLARATION DATA SHEET WITH REQUIRED DATA FIELDS THAT ACHIEVES NEGATIVE DECLARATION**

Date: 21-JUL-2004  
 Company Name: Any Company \_\_\_\_\_  
 Product Name: Integrated Circuit \_\_\_\_\_  
 Product Number(s): 001 \_\_\_\_\_  
 Product Total Mass (g): 1.0 \_\_\_\_\_

**Level A Material and Substance Declaration:**

Material/Substance Category Name	Material/Substance Category intentionally added or present (Y/N) above threshold level	If Yes, Material Substance Mass (g)	If Yes, Detailed Material Substance Information
Asbestos	N		
Azo colorants	N		
Cadmium/Cadmium compounds	N		
Hexavalent Chromium/Hexavalent Chromium Compounds	N		
Lead/Lead Compounds	N		
Mercury/Mercury Compounds	N		
Ozone Depleting Substances (CFCs, HCFCs, HBFCs, carbon tetrachloride, etc	N		
Polybrominated Biphenyls (PBBs)	N		
Polybrominated Diphenylethers (PBDEs)	N		
Polychlorinated Biphenyls (PCBs)	N		
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	N		
Radioactive Substances	N		
Shortchain Chlorinated Paraffins	N		
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	N		
Tributyl Tin Oxide (TBTO)	N		

**Annex D (Normative) Examples of Material Declaration Forms (cont'd)**

**Level B Material and Substance Declaration:**

Material/Substance Category Name	Material/Substance Category present or not (Y/N) above threshold level	If Yes, Material Substance Mass	If Yes, Detailed Material Substance Information
Antimony/Antimony Compounds	N		
Arsenic/Arsenic Compounds	N		
Beryllium/Beryllium Compounds	N		
Bismuth/ Bismuth Compounds	Y	0.2 g	Solder
Brominated Flame Retardants (other than PBBs or PBDEs)	N		
Nickel	N		
Phthalates	N		
Selenium/Selenium Compounds	N		
Polyvinyl Chloride (PVC)	N		

**EXAMPLES OF OTHER MATERIAL DECLARATION FORMATS:**

For examples of other material declarations solutions, see:

<http://home.jeita.or.jp/eps/>  
<http://www.rosettanet.org>

## Annex E (Normative) Regulatory Information and Examples of Use

The following chart outlines legal and regulatory citations for Level A Materials and Substances and examples of use of both Level A and Level B Materials and Substances in the EEE industry.

### Level A Materials/Substances

Material/ Substance	Legal and Regulatory Information	Examples of Use
Asbestos	76/769/EEC, Marketing and Use of Dangerous Substances and amendments: (83/478/EEC; 85/610/EEC; 87/217/EEC; 91/659/EEC; 99/77/EEC). United States: Toxic Substances Control Act (restricts new uses); Occupational Safety and Health Act (29 CFR 1910.1001-1051).	Brake lining pad, insulator, filler, abrasive, insulator, filler, pigment, paint, talc, adiabatic material
Azocolourants and Azodyes	76/769/EEC, Marketing and Use of Dangerous Substances and amendments: (2002/61/EC; 2003/03/EEC).	Pigment, dyes, colorants
Cadmium/ Cadmium Compounds	Statutory Order 1199 of December 23, 1992 on the Prohibition of Sale, Importation, and Manufacture of Cadmium-containing Products (Danish Law), 76/769/EEC, Marketing and Use of Dangerous Substances and amendments: (91/338/EEC, 91/157/EEC, 93/86/EEC); 2000/53/EEC (EU/ELV Directive); 2002/95/EC (EU/RoHS Directive); 94/62/EEC (EU Packaging Directive); US regulations on heavy metals in packaging (17 US states).	Pigment, anti-corrosion surface treatment, electric and electronic materials, optical material, stabilizer, plating, pigment for resin, fluorescent, electrode, solder, electric contact, contact point, zinc plating, stabilizer for PVC
Hexavalent Chromium/ Hexavalent Chromium Compounds	2000/53/EC (EU/ELV Directive), 2002/95/EC (EU RoHS Directive), 94/62/EEC (EU Packaging Directive), US regulations on heavy metals in packaging (17 States).	pigment, paint, ink, catalyst, plating, anti-corrosion surface treatment, dye, paint dryer, surface treatment, chromate treatment, paints adhesion enhancement, anti-corrosion
Lead/Lead Compounds	76/769/EEC, Marketing and Use of Dangerous Substances and amendments: (86/677/EEC, 91/157/EEC, 93/86/EEC); 2000/53/EC (EU/ELV Directive), 2002/95/EC (EU/RoHS Directive), 94/62/EEC (EU Packaging Directive), US regulations on heavy metals in packaging (17 States), California Proposition 65.	rubber hardener, pigment, paint, lubricant, plastic stabilizer, materials for battery, free-machining alloy, free-cutting steels, optical materials, X-ray shielding in CRT glass, electrical solder material, mechanical solder materials, curing agent, vulcanizing agent, ferroelectrics, resin stabilizer, plating, metal alloy, resin additives
Mercury/ Mercury Compounds	76/769/EEC, Marketing and Use of Dangerous Substances and amendments: (86/677/EEC, 91/157/EEC, 98/101/EEC); 2000/53/EC (EU/ELV Directive); 2002/95/EC (EU/RoHS Directive); 94/62/EEC (EU Packaging Directive); US regulations on heavy metals in packaging (17 States), also New England Mercury-Containing Product Legislation (VT, NH, MD, ME).	fluorescent bulb, contact point material, pigment, anti-corrosion, switches, high-efficiency phosphor, antibacterial treatment
Ozone Depleting Substances	Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and others (Japanese law), Montreal Protocol, 1990 revision of Article 611 of the Clean Air Act (US law), 76/769/EEC, marketing and Use of Dangerous Substances and amendments: (94/60/EEC; 97/64/EEC)	refrigerant, foaming agent, extinguishant, solvent cleaner
Polybrominated Biphenyls (PBBs)	2002/95/EEC (EU/RoHS Directive), German law on dioxin	flame retardant

**Annex E (Normative) Regulatory Information and Examples of Use (cont'd)**

**Level A Materials/Substances (cont'd)**

Material/ Substance	Legal and Regulatory Information	Examples of Use
Polybrominated Diphenylethers (PBDEs)	2002/95/EC (EU/RoHS Directive); German law on dioxin; 76/769/EEC, Marketing and Use of Dangerous Substances and amendments: (2003/11/EEC for Penta BDE, Octa BDE). US Law (Hawaii, Maine for penta BDE and Octa BDE).	flame retardant
Polychlorinated Biphenyls (PCBs)	The Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances (Class 1 chemical substances: Japanese law), 76/769/EEC, Marketing and Use of Dangerous Substances.	insulation oil, lubricant oil, electrical insulation medium, solvent, electrolytic solution
Polychlorinated Naphthalenes (more than 3 chlorine atoms)	The Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances (Class 1 chemical substances: Japanese law),	lubricant, paint, stabilizer (electric characteristic, flame-resistant, water-resistant) insulator, flame retardant
Radioactive substances	Laws for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors, 1986 (Japanese law)	optical properties (thorium)
Shortchain Chlorinated Paraffins	76/769/EEC (+2002/45/EC)	plasticizer for PVC, flame retardant
Tributyl Tin (TBT) and Triphenyl Tin (TPT)	The Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances (Class 2 chemical substances: Japanese law)	Stabilizer, antioxidant, antibacterial and antifungal agents, antifoulant, antiseptic, anti-fungal agent, paint, pigment, antistaining
Tributyl Tin Oxide (TBTO)	The Law concerning the Examination and Regulation of Manufacture etc. of Chemical Substances (Class 1 chemical substances: Japanese law)	antiseptic, antifungal agent, paint, pigment, antistaining, refrigerant, foaming agent, extinguishant, solvent cleaner

**Annex E (Normative) Regulatory Information and Examples of Use (cont'd)**

**Level B Materials/Substances**

<b>Material/ Substance</b>	<b>Legal and Regulatory Information</b>	<b>Examples of Use</b>
Antimony/ Antimony Compounds	Not applicable. Level B Material/Substance	pigment, paint, catalyst, lead free solder, stabilizer, n-type dopant, flame retardant, catalyst
Arsenic/ Arsenic Compounds	Not applicable. Level B Material/Substance	pigment, paint, dye, antifoamer for glass, III-V group semiconductor substrate (GaAs), flame retardant
Beryllium/ Beryllium Compounds	Not applicable. Level B Material/Substance	ceramics, metal alloy, copper-beryllium alloy, catalyst, precipitation hardening alloy, copper-beryllium alloy for spring, solder
Bismuth/ Bismuth Compounds	Not applicable. Level B Material/Substance	lead free solder, solder
Brominated Flame Retardants (other than PBBs or PBDEs)	Not applicable. Level B Material/Substance	flame retardant, package molding sealing, plasticizer for PVC, flame retardant
Nickel	Not applicable. Level B Material/Substance	surface treatment, nickel plating
Phthalates	Not applicable. Level B Material/Substance	plasticizer, dye, pigment, paint, ink, adhesive, lubricant
Selenium/ Selenium Compounds	Not applicable. Level B Material/Substance	photoreceptor, pigment, ink, catalyst, oxidizer, (semiconductor material, light receiving element, photocell
Poly Vinyl Chloride Polymer (PVC)	Not applicable. Level B Material/Substance	Insulator, chemical resistance, transparency, sheath material

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**Annex F (Normative) Detailed Chemical lists with CAS-numbers**

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**These lists are not comprehensive; they represent examples of chemicals with known CAS numbers.**

Where a product or sub-part contains related substance and meet reporting criteria, this information should be reported.

**TABLE A — Asbestos**

<b>Asbestos</b>	<b>CAS Numbers</b>
Asbestos	1332-21-4
Actinolite	77536-66-4
Amosite (Grunerite)	12172-73-5
Anthophyllite	77536-67-5
Chrysotile	12001-29-5
Crocidolite	12001-28-4
Tremolite	77536-68-6

**TABLE B — Azocolourants and Azodyes**

<b>Azocolourants and Azodyes</b>	<b>CAS Numbers</b>
biphenyl-4-ylamine	92-67-1
Benzidine	92-87-5
4-chloro-o-toluidine	95-69-2
2-naphthylamine	91-59-8
o-aminoazotoluene	97-56-3
5-nitro-o-toluidine	99-55-8
4-chloroaniline	106-47-8
4-methoxy-m-phenylenediamine	615-05-4
4,4'-methylenedianiline	101-77-9
3,3'-dichlorobenzidine	91-94-1
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7
4,4'-methylenedi-o-toluidine	838-88-0
6-methoxy-m-toluidine	120-71-8
4,4'-methylene-bis(2-chloroaniline)	101-14-4
4,4'-oxydianiline	101-80-4
4,4'-thiodianiline	139-65-1
o-toluidine	95-53-4
4-methyl-m-phenylenediamine	95-80-7
2,4,5-trimethylaniline	137-17-7
o-anisidine	90-04-0
4-amino azobenzene	60 09 3

NOTE Please note that the European Community's ban only applies to certain azocolourants and azodyes that by reductive cleavage of azo groups may release one of the following 22 aromatic amines.)

**TABLE C — Cadmium/Cadmium Compounds**

<b>Cadmium/Cadmium Compounds</b>	<b>CAS Numbers</b>
Cadmium	7440-43-9
Cadmium oxide	1306-19-0
Cadmium sulfide	1306-23-6
Cadmium chloride	10108-64-2
Cadmium sulfate	10124-36-4
Other cadmium compounds	-

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE D — Chromium VI Compounds**

<b>Chromium VI Compounds</b>	<b>CAS Numbers</b>
Chromium (VI) oxide	1333-82-0
Barium chromate	10294-40-3
Calcium chromate	13765-19-0
Chromium trioxide	1333-82-0
Lead (II) chromate	7758-97-6
Sodium chromate	7775-11-3
Sodium dichromate	10588-01-9
Strontium chromate	7789-06-2
Potassium dichromate	7778-50-9
Potassium chromate	7789-00-6
Zinc chromate	13530-65-9
Other hexavalent chromium compounds	-

**TABLE E — Lead/Lead Compounds**

<b>Lead/Lead Compounds</b>	<b>CAS Numbers</b>
Lead	7439-92-1
Lead (II) sulfate	7446-14-2
Lead (II) carbonate	598-63-0
Lead hydrocarbonate	1319-46-6
Lead acetate	301-04-2
Lead (II) acetate, trihydrate	6080-56-4
Lead phosphate	7446-27-7
Lead selenide	12069-00-0
Lead (IV) oxide	1309-60-0
Lead (II,IV) oxide	1314-41-6
Lead (II) sulfide	1314-87-0
Lead (II) oxide	1317-36-8
Lead (II) carbonate basic	1319-46-6
Lead hydroxidcarbonate	1344-36-1
Lead (II) phosphate	7446-27-7
Lead (II) chromate	7758-97-6
Lead (II) titanate	12060-00-3
Lead sulfate, sulphuric acid, lead salt	15739-80-7
Lead sulphate, tribasic	12202-17-4
Lead stearate	1072-35-1
Other lead compounds	-

**TABLE F — Mercury /Mercury Compounds**

<b>Mercury /Mercury Compounds</b>	<b>CAS Numbers</b>
Mercury	7439-97-6
Mercuric chloride	33631-63-9
Mercury (II) chloride	7487-94-7
Mercuric sulfate	7783-35-9
Mercuric nitrate	10045-94-0
Mercuric (II) oxide	21908-53-2
Mercuric sulfide	1344-48-5
Other mercury compounds	-

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE G — Ozone Depleting Substances/Isomers\***

Ozone Depleting Substances/Isomers*	CAS Numbers
Trichlorofluoromethane	75-69-4
Dichlorodifluoromethane (CFC12)	75-71-8
Chlorotrifluoromethane (CFC 13)	75-72-9
Pentachlorofluoroethane (CFC 111)	354-56-3
Tetrachlorodifluoroethane (CFC 112)	76-12-0
Trichlorotrifluoroethane (CFC 113)	354-58-5
1,1,2 Trichloro-1,2,2 trifluoroethane	76-13-1
Dichlorotetrafluoroethane (CFC 114)	76-14-2
Monochloropentafluoroethane (CFC 115)	76-15-3
Heptachlorofluoropropane (CFC 211)	422-78-6 135401-87-5
Hexachlorodifluoropropane (CFC 212)	3182-26-1
Pentachlorotrifluoropropane (CFC 213)	2354-06-5 134237-31-3
Tetrachlorotetrafluoropropane (CFC 214)	29255-31-0
1,1,1,3-Tetrachlorotetrafluoropropane	2268-46-4
Trichloropentafluoropropane (CFC 215)	1599-41-3
1,1,1-Trichloropentafluoropropane	4259-43-2
1,2,3-Trichloropentafluoropropane	76-17-5
Dichlorohexafluoropropane (CFC 216)	661-97-2
Monochloroheptafluoropropane (CFC 217)	422-86-6
Bromochlorodifluoromethane (Halon 1211)	353-59-3
Bromotrifluoromethane (Halon 1301)	75-63-8
Dibromotetrafluoroethane (Halon 2402)	124-73-2
Carbon Tetrachloride (Tetrachloromethane)	56-23-5
1,1,1, - Trichloroethane (methyl chloroform) and its isomers except 1,1,2-trichloroethane	71-55-6
Bromomethane (Methyl Bromide)	74-83-9
Bromodifluoromethane and isomers (HBFC's)	1511-62-2

\* These materials may contain isomers that are not listed here. Isomers with CAS numbers have been included when available.

**TABLE H — Hydrochlorofluorocarbons/Isomers\***

Hydrochlorofluorocarbons/Isomers*	CAS Numbers
Dichlorofluoromethane (HCFC 21)	75-43-4
Chlorodifluoromethane (HCFC 22)	75-45-6
Chlorofluoromethane (HCFC 31)	593-70-4
Tetrachlorofluoroethane (HCFC 121)	134237-32-4
1,1,1,2-tetrachloro-2-fluoroethane (HCFC 121a)	354-11-0
1,1,2,2-tetracloro-1-fluoroethane	354-14-3
Trichlorodifluoroethane (HCFC 122)	41834-16-6
1,2,2-trichloro-1,1-difluoroethane	354-21-2
Dichlorotrifluoroethane(HCFC 123)	34077-87-7
Dichloro-1,1,2-trifluoroethane	90454-18-5
2,2-dichloro-1,1,1-trifluoroethane	306-83-2
1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a)	354-23-4
1,1-dichloro-1,2,2-trifluoroethane (HCFC-123b)	812-04-4
2,2-dichloro-1,1,2-trifluoroethane (HCFC-123b)	812-04-4
Chlorotetrafluoroethane (HCFC 124)	63938-10-3
2-chloro-1,1,1,2-tetrafluoroethane	2837-89-0
1-chloro-1,1,2,2-tetrafluoroethane (HCFC 124a)	354-25-6
Trichlorofluoroethane (HCFC 131)	27154-33-2;(134237-34-6)
1-Fluoro-1,2,2-trichloroethane	359-28-4
1,1,1-trichloro-2-fluoroethane (HCFC131b)	811-95-0

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE H — Hydrochlorofluorocarbons/Isomers\* (cont'd)**

Hydrochlorofluorocarbons/Isomers*	CAS Numbers
Dichlorodifluoroethane (HCFC 132)	25915-78-0
1,2-dichloro-1,1-difluoroethane (HCFC 132b)	1649-08-7
1,1-dichloro-1,2-difluoroethane (HCFC 132c)	1842-05-3
1,1-dichloro-2,2-difluoroethane	471-43-2
1,2-dichloro-1,2-difluoroethane	431-06-1
Chlorotrifluoroethane (HCFC 133)	1330-45-6
1-chloro-1,2,2-trifluoroethane	1330-45-6
2-chloro-1,1,1-trifluoroethane (HCFC-133a)	75-88-7
Dichlorofluoroethane(HCFC 141)	1717-00-6; (25167-88-8)
1,1-dichloro-1-fluoroethane (HCFC-141b)	1717-00-6
1,2-dichloro-1-fluoroethane	430-57-9
Chlorodifluoroethane (HCFC 142)	25497-29-4
1-chloro-1,1-difluoroethane (HCFC142b)	75-68-3
1-chloro-1,2-difluoroethane (HCFC142a)	25497-29-4
Hexachlorofluoropropane (HCFC 221)	134237-35-7
Pentachlorodifluoropropane (HCFC 222)	134237-36-8
Tetrachlorotrifluoropropane (HCFC 223)	134237-37-9
Trichlorotetrafluoropropane (HCFC 224)	134237-38-0
Dichloropentafluoropropane, (Ethyne, fluoro-) (HCFC 225)	127564-92-5; (2713-09-9)
2,2-Dichloro-1,1,1,3,3-pentafluoropropane(HCFC 225aa)	128903-21-9
2,3-Dichloro-1,1,1,2,3-pentafluoropropane (HCFC 225ba)	422-48-0
1,2-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225bb)	422-44-6
3,3-Dichloro-1,1,1,2,2-pentafluoropropane (HCFC 225ca)	422-56-0
1,3-Dichloro-1,1,2,2,3-pentafluoropropane (HCFC 225cb)	507-55-1
1,1-Dichloro-1,2,2,3,3-pentafluoropropane(HCFC 225cc)	13474-88-9
1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC 225da)	431-86-7
1,3-Dichloro-1,1,2,3,3-pentafluoropropane (HCFC 225ea)	136013-79-1
1,1-Dichloro-1,2,3,3,3-pentafluoropropane(HCFC 225eb)	111512-56-2
Chlorohexafluoropropane (HCFC 226)	134308-72-8
Pentachlorofluoropropane (HCFC 231)	134190-48-0
Tetrachlorodifluoropropane (HCFC 232)	134237-39-1
Trichlorotrifluoropropane (HCFC 233)	134237-40-4
1,1,1-Trichloro-3,3,3-trifluoropropane	7125-83-9
Dichlorotetrafluoropropane (HCFC 234)	127564-83-4
Chloropentafluoropropane (HCFC 235)	134237-41-5
1-Chloro-1,1,3,3,3-pentafluoropropane	460-92-4
Tetrachlorofluoropropane (HCFC 241)	134190-49-1
Trichlorodifluoropropane (HCFC 242)	134237-42-6
Dichlorotrifluoropropane (HCFC 243)	134237-43-7
1,1-dichloro-1,2,2-trifluoropropane	7125-99-7
2,3-dichloro-1,1,1-trifluoropropane	338-75-0
3,3-Dichloro-1,1,1-trifluoropropane	460-69-5
Chlorotetrafluoropropane (HCFC 244)	134190-50-4
3-chloro-1,1,2,2-tetrafluoropropane	679-85-6
Trichlorofluoropropane (HCFC 251)	134190-51-5
1,1,3-trichloro-1-fluoropropane	818-99-5
Dichlorodifluoropropane (HCFC 252)	134190-52-6
Chlorotrifluoropropane (HCFC 253)	134237-44-8
3-chloro-1,1,1-trifluoropropane (HCFC 253fb)	460-35-5
Dichlorofluoropropane (HCFC 261)	134237-45-9
1,1-dichloro-1-fluoropropane	7799-56-6
Chlorodifluoropropane (HCFC 262)	134190-53-7
2-chloro-1,3-difluoropropane	102738-79-4
Chlorofluoropropane (HCFC 271)	134190-54-8
2-chloro-2-fluoropropane	420-44-0

\* These materials may contain isomers that are not listed here. Isomers with CAS numbers have been included when available.

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE I — Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs)**

<b>Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs)</b>	<b>CAS Numbers</b>
Bromobiphenyl and its ethers	2052-07-5 (2-Bromobiphenyl) 2113-57-7 (3-Bromobiphenyl) 92-66-0 (4-Bromobiphenyl) 101-55-3 (ether)
Decabromobiphenyl and its ethers	13654-09-6 1163-19-5 (ether)
Dibromobiphenyl and its ethers	92-86-4 2050-47-7 (ether)
Heptabromobiphenylether	68928-80-3
Hexabromobiphenyl and its ethers	59080-40-9 36355-01-8 (hexabromo-1,1'-biphenyl) 67774-32-7 (Firemaster FF-1) 36483-60-0 (ether)
Nonabromobiphenylether	63936-56-1
Octabromobiphenyl and its ethers	61288-13-9 32536-52-0 (ether)
Pentabromobidphenyl ether (note: Commercially available PeBDPO is a complex reaction mixture containing a variety of brominated diphenyloxides.	32534-81-9 (CAS number used for commercial grades of PeBDPO)
Polybrominated Biphenyls	59536-65-1
Tetrabromobiphenyl and its ethers	40088-45-7 40088-47-9 (ether)
Tribromobiphenyl ether	49690-94-0

**TABLE J — Polychlorinated Biphenyls (PCBs)**

<b>Polychlorinated Biphenyls (PCBs)</b>	<b>CAS Numbers</b>
Polychlorinated Biphenyls	1336-36-3
Aroclor	12767-79-2
Chlorodiphenyl (Aroclor 1260)	11096-82-5
Kanechlor 500	27323-18-8
Aroclor 1254	11097-69-1
Terphenyls	26140-60-3

**TABLE K — Polychlorinated Naphthalenes**

<b>Polychlorinated Naphthalenes</b>	<b>CAS Numbers</b>
Polychlorinated Naphthalenes	70776-03-3
Other polychlorinated Naphthalenes	-

**TABLE L — Radioactive Substances**

<b>Radioactive Substances</b>	<b>CAS Numbers</b>
Uranium	-
Plutonium	-
Radon	-
Americium	-
Thorium	-
Cesium	7440-46-2
Strontium	7440-24-6
Other radioactive substances	-

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE M — Shortchain Chlorinated Paraffins**

Shortchain Chlorinated Paraffins	CAS Numbers
Chlorinated paraffins (C10-13) <sup>1</sup>	85535-84-8
Other Short Chain Chlorinated Paraffins	-

**TABLE N — Tributyl Tin Oxide**

Tributyl Tin Oxide	CAS Numbers
Bis(tri-n-butyltin) oxide	56-35-9

**TABLE O — Tributyl Tin, Triphenyl Tin**

Tributyl Tin, Triphenyl Tin	CAS Numbers
Bis(tri-n-butyltin) oxide	56-35-9
Triphenyltin N,N'-dimethyldithiocarbamate	1803-12-9
Triphenyltin fluoride	379-52-2
Triphenyltin acetate	900-95-8
Triphenyltin chloride	639-58-7
Triphenyltin hydroxide	76-87-9
Triphenyltin fatty acid salts (C=9-11)	47672-31-1
Triphenyltin chloroacetate	7094-94-2
Tributyltin methacrylate	2155-70-6
Bis(tributyltin) fumarate	6454-35-9
Tributyltin fluoride	1983-10-4
Bis(tributyltin) 2,3-dibromosuccinate	31732-71-5
Tributyltin acetate	56-36-0
Tributyltin laurate	3090-36-6
Bis(tributyltin) phthalate	4782-29-0
Copolymer of alkyl acrylate, methyl methacrylate and tributyltin methacrylate(alkyl; C=8)	-
Tributyltin sulfamate	6517-25-5
Bis(tributyltin) maleate	14275-57-1
Tributyltin chloride	1461-22-9
Mixture of tributyltin cyclopentanecarboxylate and its analogs (Tributyltin naphthenate)	-
Mixture of tributyltin 1,2,3,4,4a, 4b, 5,6,10,10a-decahydro-7-isopropyl-1, 4a-dimethyl-1-phenanthlenecarboxylate and its analogs (Tributyltin rosin salt)	-
Other Tributyl Tins & Triphenyl Tins	-

**TABLE P — Antimony/Antimony Compounds**

Antimony/Antimony Compounds	CAS Numbers
Antimony (metallic)	7440-36-0
Antimony trioxide	1309-64-4
Antimony pentoxide	1314-60-9
Antimony trichloride	10025-91-9
Sodium antimonate	15432-85-6
Other antimony compounds	-

<sup>1</sup> Only short-chain chlorinated paraffins with carbon length of 10-13 atoms are covered.

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE Q — Arsenic/Arsenic Compounds**

<b>Arsenic/Arsenic Compounds</b>	<b>CAS Numbers</b>
Arsenic	7440-38-2
Gallium arsenide	1303-00-0
Calcium arsenate	7778-44-1
Calcium arsenite	27152-57-4
Arsenic pentoxide	1303-28-2
Arsenic trioxide	1327-53-3
Potassium arsenite	10124-50-2
Potassium arsenate	7784-41-0
Lead arsenate	3687-31-8
Other arsenic compounds	-

**TABLE R — Beryllium/Beryllium Compounds**

<b>Beryllium/Beryllium Compounds</b>	<b>CAS Numbers</b>
Beryllium	7440-41-7
Beryllium-aluminum alloy	12770-50-2
Beryllium chloride	7787-47-5
Beryllium fluoride	7787-49-7
Beryllium hydroxide	13327-32-7
Beryllium oxide	1304-56-9
Beryllium phosphate	13598-15-7
Beryllium sulfate	13510-49-1
Beryllium sulfate tetrahydrate	7787-56-6
Beryl ore	1302-52-9
Other beryllium compounds	-

**TABLE S — Bismuth/Bismuth Compounds**

<b>Bismuth/Bismuth Compounds</b>	<b>CAS Numbers</b>
Bismuth	7440-69-9
Bismuth trioxide	1304-76-3
Bismuth nitrate	10361-44-1
Other bismuth compounds	-

**TABLE T — Brominated Flame Retardants (other than PBBs or PBBEs)**

<b>Brominated Flame Retardants (other than PBBs or PBBEs)</b>	<b>CAS Numbers</b>
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(14) [Aliphatic/alicyclic brominated compounds]	-
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(15) [Aliphatic/alicyclic brominated compounds in combination with antimony compounds]	-
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(16) [Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls]	-
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(17) [Aromatic brominated compounds excluding brominated diphenyl ether and biphenyls] in combination with antimony compounds]	-
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(22) [Aliphatic/alicyclic chlorinated and brominated compounds]	-
Brominated flame retardant which comes under notation of ISO 1043-4 code number FR(42) [Brominated organic phosphorus compounds]	-
Poly(2,6-dibromo-phenylene oxide)	69882-11-7
Tetra-decabromo-diphenoxy-benzene	58965-66-5
1,2-Bis(2,4,6-tribromo-phenoxy) ethane	37853-59-1

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE T — Brominated Flame Retardants (other than PBBs or PBBEs) (cont'd)**

<b>Brominated Flame Retardants (other than PBBs or PBBEs)</b>	<b>CAS Numbers</b>
3,5,3',5'-Tetrabromo-bisphenol A (TBBA)	79-94-7
TBBA, unspecified	30496-13-0
TBBA-epichlorhydrin oligomer	40039-93-8
TBBA-TBBA-diglycidyl-ether oligomer	70682-74-5
TBBA carbonate oligomer	28906-13-0
TBBA carbonate oligomer, phenoxy end capped	94334-64-2
TBBA carbonate oligomer, 2,4,6-tribromo-phenol terminated	71342-77-3
TBBA-bisphenol A-phosgene polymer	32844-27-2
Brominated epoxy resin end-capped with tribromophenol	139638-58-7
Brominated epoxy resin end-capped with tribromophenol	135229-48-0
TBBA-(2,3-dibromo-propyl-ether)	21850-44-2
TBBA bis-(2-hydroxy-ethyl-ether)	4162-45-2
TBBA-bis-(allyl-ether)	25327-89-3
TBBA-dimethyl-ether	37853-61-5
Tetrabromo-bisphenol S	39635-79-5
TBBS-bis-(2,3-dibromo-propyl-ether)	42757-55-1
2,4-Dibromo-phenol	615-58-7
2,4,6-tribromo-phenol	118-79-6
Pentabromo-phenol	608-71-9
2,4,6-Tribromo-phenyl-alltl-ether	3278-89-5
Tribromo-phenyl-allyl-ether, unspecified	26762-91-4
Bis(methyl)tetrabromo-phthalate	55481-60-2
Bis(2-ethylhexyl)tetrabromo-phthalate	26040-51-7
2-Hydroxy-propyl-2-(2-hydroxy-ethoxy)-ethyl-TBP	20566-35-2
TBPA, glycol-and propylene-oxide esters	75790-69-1
N,N'-Ethylene -bis-(tetrabromo-phthalimide)	32588-76-4
Ethylene-bis(5,6-dibromo-norbornane-2,3-dicarboximide)	52907-07-0
2,3-Dibromo-2-butene-1,4-diol	3234-02-4
Dibromo-neopentyl-glycol	3296-90-0
Dibromo-propanol	96-13-9
Tribromo-neopentyl-alcohol	36483-57-5
Poly tribromo-styrene	57137-10-7
Tribromo-styrene	61368-34-1
Dibromo-styrene grafted PP	171091-06-8
Poly-dibromo-styrene	31780-26-4
Bromo-/Chloro-paraffins	68955-41-9
Bromo-/Chloro-alpha-olefin	82600-56-4
Vinylbromide	593-60-2
Tris-(2,3-dibromo-propyl)-isocyanurate	52434-90-9
Tris(2,4-Dibromo-phenyl) phosphate	49690-63-3
Tris(tribromo-neopentyl) phosphate	19186-97-1
Chlorinated and brominated phosphate ester	125997-20-8
Pentabromo-toluene	87-83-2
Pentabromo-benzyl bromide	38521-51-6
1,3-Butadiene homopolymer,brominated	68441-46-3
Pentabromo-benzyl-acrylate, monomer	59447-55-1
Pentabromo-benzyl-acrylate, polymer	59447-57-3
Decabromo-diphenyl-ethane	84852-53-9
Tribromo-bisphenyl-maleinimide	59789-51-4
Brominated trimethylphenyl-hindane	59789-51-4
Other Brominated Flame Retardants	-
Hexabromo-cyclo-dodecane (HBCD), unspecified	3194-55-6
Tetrabromo-chyclo-octane	31454-48-5
1,2-Dibromo-4-(1,2 dibromo-methyl)-cyclo-hexane	3322-93-8
TBPA Na salt	25357-79-3
Tetrabromo phthalic-anhydride	632-79-1

**Annex F (Normative) Detailed Chemical lists with CAS-numbers (cont'd)**

**TABLE U — Nickel/Nickel Compounds**

<b>Nickel/Nickel Compounds</b>	<b>CAS Numbers</b>
Nickel	7440-02-0

**TABLE V — Phthalates**

<b>Phthalates</b>	<b>CAS Numbers</b>
Bis (2-ethylhexyl) phthalate (DEHP)	117-81-7
Dibutylphthalate (DBP)	84-74-2
Bis(2-methoxyethyl) phthalate (DBP)	117-82-8

**TABLE W — Selenium/Selenium Compounds**

<b>Selenium/Selenium Compounds</b>	<b>CAS Numbers</b>
Selenium	7782-49-2
Hydrogen selenide	7783-07-5
Sodium selenide	1313-85-5
Selenium dioxide	7446-08-4
Sodium selenate	10112-94-4
Dimethyl selenide	593-79-3
Selenium oxide	12640-89-0
Other selenium compounds	-

**TABLE X — Polyvinyl Chloride**

<b>Polyvinyl Chloride</b>	<b>CAS Number</b>
Polyvinyl chloride (PVC)	9002-86-2





**Standard Improvement Form**

**Joint Industry Group Standard JIG-101**

The purpose of this form is to provide the Technical Committees with input from the industry regarding usage of the subject standard. Individuals or companies are invited to submit comments to the Joint Industry Group Materials Declaration Guide Committee. All comments will be forwarded to the appropriate committee(s).

If you can provide input, please complete this form and return to both associations:

EIA  
Standards and Technology Department  
2500 Wilson Blvd.  
Arlington, VA 22201-3834  
Fax: 703.907.7500

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1. I recommend changes to the following:

Requirement, paragraph number \_\_\_\_\_  
 Test method number \_\_\_\_\_ Clause number \_\_\_\_\_

The referenced paragraph number has proven to be:

Unclear  Too Rigid  In Error  
 Other \_\_\_\_\_

---

2. Recommendations for correction:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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3. Other suggestions for document improvement:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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Submitted by:

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Company: \_\_\_\_\_ E-mail: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip \_\_\_\_\_ Date: \_\_\_\_\_

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